Title: Modelling dependence between hydrological and meteorological variables measured on several stations

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Abstract: The aim of the thesis is to explore the dependence of daily discharge averages of the Opava river on high daily precipitation values in its basin. Three methods are presented that can be used for analyzing the dependence between high values of random variables. Their application on the studied data is also given. First it is the tail-dependence coefficient that measures the dependence between high values of two continuous random variables. The model for the high quantiles of the discharge at a given precipitation value was first determined non-parametrically by quantile regression and then parametrically through the peaks-over-threshold (POT) method.

Keywords: extremal dependence, tail-dependence coefficient, quantile regression, peaks over threshold method